

COMPUTER GENERATED FORM PTO-1390
(REV 10-97)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NO.
3815/118TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED /ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371U.S. APPLICATION NO. (if
known, see 67 FR 1.75INTERNATIONAL APPLICATION NO.
PCT/JP00/03650INTERNATIONAL FILING DATE
5 June 2000PRIORITY DATE CLAIMED
21 June 1999

TITLE OF INVENTION

DATA TRANSMISSION METHOD, DATA TRANSMISSION SYSTEM, TRANSMITTER AND RECEIVER

APPLICANT(S) FOR DO/EO/US

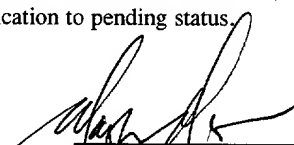
Yukihiko OKUMURA

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☒ has been transmitted by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office.
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☒ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. To 16. Below concern document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98, with cited references.
12. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A FIRST preliminary amendment (14 pp)
 - ☐ Letter to Draftsperson, with attached proposed correction to Figure _____
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items of information:
 - 1) Cover page, WIPO WO 00/79720
 - 2) PCT Request
 - 3) International Search Report, issued by JPO as Examining Authority
 - 4) Notification of Receipt of Record Copy
 - 5) Notification Concerning Submission or Transmittal of Priority Document
 - 6) Notice Informing the Applicant of the Communication of the International Application to the Designated Offices
17. ☒ The following fees are submitted:

U.S. APPLICATION NO. 09/763375 (If known, fee 37 CFR 1.5)	INTERNATIONAL APPLICATION NO. PCT/JP00/03650	ATTORNEY'S DOCKET NO. 3815/118			
BASIC NATIONAL FEE (37 CFR 1.492(a) (1)-(5)): Search Report has been prepared by the EPO or JPO \$860.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) \$690.00 No international preliminary examination fee paid to USPTO (37 CFR 1.482) But international search fee paid to USPTO (37 CFR 1.445(a)(2)) \$710.00 Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$1000.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) And all claims satisfied provisions of PCT Article 33(2)-(4) 100.00		CALCULATIONS PTO USE ONLY			
ENTER APPROPRIATE BASIC FEE AMOUNT =		\$860.00			
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 Months from the earliest claims priority date (37 CFR 1.492 (e))		\$			
Claims	Number Filed	Number Extra	Rate		
Total claims	108 - 20 =	88	x \$18.00	\$ 1,584	
Independent claims	25 - 3 =	22	x \$80.00	\$ 1,760	
MULTIPLE DEPENDENT CLAIMED (if applicable)			+ \$270.00	\$ 270	
TOTAL OF ABOVE CALCULATIONS =				\$ 4,204	
Reduction of ½ for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28)				\$	
SUBTOTAL =				\$ 4,204	
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f))				\$	
TOTAL NATIONAL FEE =				\$4,204	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				\$ 40	
TOTAL FEES ENCLOSED =				\$4,244	
				Amount to be Refunded	\$
				Charged	\$
a. <input checked="" type="checkbox"/> A check in the amount of \$ <u>4,244.00</u> to cover the above fees is enclosed. b. <input type="checkbox"/> Please charge my Deposit Account No. <u>02-4270</u> in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed. c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>02-4270</u> . A duplicate copy of this sheet is enclosed.					
NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.					
SEND ALL CORRESPONDENCE TO: Brown Raysman Millstein Felder & Steiner LLP 120 West 45 th Street New York, New York 10036 (212) 944-1515					
 Matthew J. Marquardt Registration No. 40,997 21 February 2001					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Yukihiro OKUMURA
Filed : Concurrently Herewith
Title : DATA TRANSMISSION METHOD, DATA TRANSMISSION
SYSTEM, TRANSMITTER AND RECEIVER

Box PCT
Assistant Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Please enter the following amendment prior to substantive examination of the application herein. The amendments of the claims are entered only for the purpose of reducing multiple dependent claim fees and administrative complexities associated therewith, and not for any purpose related to patentability. The amendments to claims 1 through 60 constitute a mere re-writing of the claims present in the application as originally filed. The addition of new claims 61 through 80 constitutes a mere re-writing of claims that were originally included in claims 1 through 60. The additional claims are supported throughout the specification and in the claims as originally presented. The amendments add no new matter to the application.

In the Specification:

Please delete the current title of the invention and replace it at all locations with the following: "Data Transmission Method, Data Transmission System, Transmitted and Receiver".

At:

Page 10, line 22, delete "as claimed in claim 1 is", and insert --in one aspect provides--.

Page 11, line 23, delete "The" and insert in its place --Optionally, the--.

Page 11, line 23, delete “as claimed in claim 2 is the data transmission method as claimed in claim 1”, and insert --provides methods as disclosed herein--.

Page 12, line 15, delete “as claimed in claim 3 is”, and insert --in another aspect provides--.

Page 14, line 4, delete “as claimed in claim 4 is”, and insert --in another aspect provides--.

Page 15, line 18, delete “The” and insert in its place --Optionally, the--.

Page 15, lines 18-20, delete “as claimed in claim 5 is the data transmission method as claimed in any one of claims 1-4”, and insert --provides methods as disclosed herein--.

Page 16, line 4, delete “The” and insert in its place --Optionally, the--.

Page 16, lines 4-5, delete “as claimed in claim 6 is the data transmission method as claimed in claim 5”, and insert --provides methods as disclosed herein--.

Page 17, line 5, delete “The” and insert in its place --Optionally, the--.

Page 17, lines 5-6, delete “as claimed in claim 7 is the data transmission method as claimed in claim 6”, and insert --provides methods as disclosed herein--.

Page 17, line 10, delete “as claimed in claim 8 is”, and insert --in another aspect provides--.

Page 19, line 8, delete “as claimed in claim 9 is”, and insert --in another aspect provides--.

Page 21, line 4, delete “The” and insert in its place --Optionally, the--.

Page 21, lines 4-6, delete “as claimed in claim 10 is the data transmission method as claimed in any one of claims 6-9”, and insert --provides methods as disclosed herein--.

Page 21, line 20, delete “The” and insert in its place --Optionally, the--.

Page 21, lines 20-21, delete “as claimed in claim 11 is the data transmission method as claimed in claim 10”, and insert --provides methods as disclosed herein--.

Page 22, line 1, delete “The” and insert in its place --Optionally, the--.

Page 22, lines 1-2, delete “as claimed in claim 12 is the data transmission method as claimed in claim 11”, and insert --provides methods as disclosed herein--.

Page 22, line 13, delete “The” and insert in its place --Optionally, the--.

Page 22, lines 13-14, delete “as claimed in claim 14 is the data transmission method as claimed in any one of claims 10-13”, and insert --provides methods as disclosed herein--.

Page 22, line 25, delete “The” and insert in its place --Optionally, the--.

Page 22, lines 25-27, delete “as claimed in claim 15 is the data transmission method as claimed in any one of claims 6-14”, and insert --provides methods as disclosed herein--.

Page 23, line 9, delete “The” and insert in its place --Optionally, the--.

Page 23, lines 9-10, delete “as claimed in claim 16 is the data transmission method as claimed in claim 5”, and insert --provides methods as disclosed herein--.

Page 24, line 7, delete “The” and insert in its place --Optionally, the--.

Page 24, lines 7-8, delete “as claimed in claim 17 is the data transmission method as claimed in claim 16”, and insert --provides methods as disclosed herein--.

Page 25, line 12, delete “The” and insert in its place --Optionally, the--.

Page 25, lines 12-13, delete “as claimed in claim 18 is the data transmission method as claimed in claim 17”, and insert --provides methods as disclosed herein--.

Page 25, line 17, delete “as claimed in claim 19 is”, and insert --in another aspect provides--.

Page 28, line 18, delete “as claimed in claim 20 is”, and insert --in another aspect provides--.

Page 31, line 17, delete “The” and insert in its place --Optionally, the--.

Page 31, lines 17-18, delete “as claimed in claim 21 is the data transmission method as claimed in any one of claims 17-20”, and insert --provides methods as disclosed herein--.

Page 32, line 1, delete “The” and insert in its place --Optionally, the--.

Page 32, lines 1-2, delete “as claimed in claim 22 is the data transmission method as claimed in any one of claims 16-21”, and insert --provides methods as disclosed herein--.

Page 32, line 9, delete “The” and insert in its place --Optionally, the--.

Page 32, lines 9-10, delete “as claimed in claim 23 is the data transmission method as claimed in claim 22”, and insert --provides methods as disclosed herein--.

Page 32, line 14, delete “The” and insert in its place --Optionally, the--.

Page 32, lines 14-15, delete “as claimed in claim 24 is the data transmission method as claimed in any one of claims 16-21”, and insert --provides methods as disclosed herein--.

Page 32, line 21, delete “The” and insert in its place --Optionally, the--.

Page 32, lines 21-23, delete “as claimed in claim 25 is the data transmission method as claimed in any one of claims 1-24”, and insert --provides methods as disclosed herein--.

Page 32, line 24, delete “as claimed in claim 26 is”, and insert --in another aspect provides--.

Page 33, line 27, delete “The” and insert in its place --Optionally, the--.

Page 33, line 27 through Page 34, line 1, delete “as claimed in claim 27 is the data transmission system as claimed in claim 26”, and insert --provides systems as disclosed herein--.

Page 34, line 19, delete “as claimed in claim 28 is”, and insert --in another aspect provides--.

Page 36, line 10, delete “as claimed in claim 29 is”, and insert --in another aspect provides--.

Page 37, line 26, delete “The” and insert in its place --Optionally, the--.

Page 37, lines 26-27, delete “as claimed in claim 30 is the data transmission system as claimed in any one of claims 26-29”, and insert --provides systems as disclosed herein--.

Page 38, line 13, delete “The” and insert in its place --Optionally, the--.

Page 38, lines 13-14, delete “as claimed in claim 31 is the data transmission system as claimed in claim 30”, and insert --provides systems as disclosed herein--.

Page 39, line 14, delete “The” and insert in its place --Optionally, the--.

Page 39, lines 14-15, delete “as claimed in claim 32 is the data transmission system as claimed in claim 31”, and insert --provides systems as disclosed herein--.

Page 39, line 19, delete “as claimed in claim 33 is ”, and insert --in another aspect provides--.

Page 41, line 18, delete “as claimed in claim 34 is”, and insert --in another aspect provides--.

Page 43, line 15, delete “The” and insert in its place --Optionally, the--.

Page 43, lines 15-16, delete “as claimed in claim 35 is the data transmission system as claimed in any one of claims 31-34”, and insert --provides systems as disclosed herein--.

Page 44, line 4, delete “The” and insert in its place --Optionally, the--.

Page 44, line 4-5, delete “as claimed in claim 36 is the data transmission system as claimed in claim 35”, and insert --provides systems as disclosed herein--.

Page 44, line 11, delete “The” and insert in its place --Optionally, the--.

Page 44, lines 11-12, delete “as claimed in claim 37 is the data transmission system as claimed in claim 36”, and insert --provides systems as disclosed herein--.

Page 44, line 16, delete “The” and insert in its place --Optionally, the--.

Page 44, lines 16-17, delete “as claimed in claim 38 is the data transmission system as claimed in claim 35”, and insert --provides systems as disclosed herein--.

Page 44, line 23, delete “The” and insert in its place --Optionally, the--.

Page 44, line 23-24, delete “as claimed in claim 39 is the data transmission system as claimed in any one of claims 35-38”, and insert --provides systems as disclosed herein--.

Page 45, line 8, delete “The” and insert in its place --Optionally, the--.

Page 45, lines 8-9, delete “as claimed in claim 40 is the data transmission system as claimed in any one of claims 31-39”, and insert --provides systems as disclosed herein--.

Page 45, line 19, delete “The” and insert in its place --Optionally, the--.

Page 45, lines 19-20, delete “as claimed in claim 41 is the data transmission system as claimed in claim 30”, and insert --provides systems as disclosed herein--.

Page 46, line 17, delete “The” and insert in its place --Optionally, the--.

Page 46, lines 17-18, delete “as claimed in claim 42 is the data transmission system as claimed in claim 41”, and insert --provides systems as disclosed herein--.

Page 47, line 22, delete “The” and insert in its place --Optionally, the--.

Page 47, lines 22-23, delete “as claimed in claim 43 is the data transmission system as claimed in claim 42”, and insert --provides systems as disclosed herein--.

Page 47, line 27, delete “as claimed in claim 44 is”, and insert --in another aspect provides--.

Page 51, line 1, delete “as claimed in claim 45 is”, and insert --in another aspect provides--.

Page 54, line 1, delete “The” and insert in its place --Optionally, the--.

Page 54, lines 1-2, delete “as claimed in claim 46 is the data transmission system as claimed in any one of claims 42-45”, and insert --provides systems as disclosed herein--.

Page 54, line 12, delete “The” and insert in its place --Optionally, the--.

Page 54, lines 12-13, delete “as claimed in claim 47 is the data transmission system as claimed in any one of claims 41-46”, and insert --provides systems as disclosed herein--.

Page 54, line 20, delete “The” and insert in its place --Optionally, the--.

Page 54, lines 20-21, delete “as claimed in claim 48 is the data transmission system as claimed in 47”, and insert --provides systems as disclosed herein--.

Page 54, line 25, delete “The” and insert in its place --Optionally, the--.

Page 54, lines 25-26, delete “as claimed in claim 49 is the data transmission system as claimed in any one of claims 41-46”, and insert --provides systems as disclosed herein--.

Page 55, line 5, delete “The” and insert in its place --Optionally, the--.

Page 55, lines 5-6, delete “as claimed in claim 50 is the data transmission system as claimed in any one of claims 26-49”, and insert --provides systems as disclosed herein--.

Page 55, line 8, delete “as claimed in claim 51 is”, and insert --in another aspect provides--.

Page 55, line 20, delete “as claimed in claim 52 is”, and insert --in another aspect provides--.

Page 56, line 9, delete “as claimed in claim 53 is”, and insert --in another aspect provides--.

Page 56, line 23, delete “as claimed in claim 54 is”, and insert --in another aspect provides--.

Page 57, line 18, delete “as claimed in claim 55 is”, and insert --in another aspect provides--.

Page 58, line 26, delete “as claimed in claim 56 is”, and insert --in another aspect provides--.

Page 60, line 5, delete “as claimed in claim 57 is”, and insert --in another aspect provides--.

Page 61, line 23, delete “as claimed in claim 58 is”, and insert --in another aspect provides--.

Page 63, line 12, delete “as claimed in claim 59 is”, and insert --in another aspect provides--.

Page 66, line 4, delete “as claimed in claim 60 is”, and insert --in another aspect provides--.

In the Claims:

In claim 10, please delete “any one of claims 6-9”, and insert in its place --claim 6--.

In claim 14, please delete “any one of claims 10-13”, and insert in its place --claim 10--.

In claim 15, please delete “any one of claims 6-14”, and insert in its place --claim 6--

In claim 21, please delete “any one of claims 17-20”, and insert in its place --claim 17--

In claim 22, please delete “any one of claims 16-21”, and insert in its place --claim 16--

In claim 24, please delete “any one of claims 16-21”, and insert in its place --claim
16--

In claim 25, please delete “any one of claims 1-24”, and insert in its place --claims 1,
3, 4, 8, 9, 19 or 20--

In claim 35, please delete “any one of claims 31-34”, and insert in its place --claim
31--

In claim 39, please delete “any one of claims 35-38”, and insert in its place --claim
35--

In claim 40, please delete “any one of claims 31-39”, and insert in its place --claim
31--

In claim 46, please delete “any one of claims 42-45”, and insert in its place --claim
42--

In claim 47, please delete “any one of claims 41-46”, and insert in its place --claim
41--

In claim 49, please delete “any one of claims 41-46”, and insert in its place --claim
41--

In claim 50, please delete “any one of claims 26-49”, and insert in its place --claim
26, 28, 33, 34, 44, or 45--

Please add the following claims 61-80:

--61. The data transmission method as claimed in claim 8 or 9, further comprising
the step of:
at the transmitting side,

calculating transmission rate information indicating the number of bits of the transmitted data, frame by frame,

wherein said step of generating the frame data generates the frame data containing the calculated transmission rate information, and

at the receiving side,

wherein both said step of conducting the error-correcting decoding and said step of calculating the error-detecting code assume the final bit position of the frame data on the basis of the transmission rate information in the received frame data.

62. The data transmission method as claimed in claim 61, wherein at the transmitting side, said step of conducting the error-correcting coding conducts, for the transmission rate information, independent error-correcting coding that is separate from the error-correcting coding for the transmitted data, the error-detecting code, and the tail bit.

63. The data transmission method as claimed in claim 62, wherein at the transmitting side, said step of conducting the error-correcting coding conducts the error-correcting coding of the transmission rate information by using a block code.

64. The data transmission method as claimed in claim 61, wherein at the transmitting side, said step of conducting the error-correcting coding conducts the error-correcting coding of all of the transmission rate information, the transmitted data, the error-detecting code, and the tail bit collectively with a convolutional code.

65. The data transmission method as claimed in claim 61, wherein at the receiving side, if said step of deciding does not decide that the final bit position of the frame data assumed on the basis of the transmission rate information in the received frame data is the final bit position of the frame data, both said step of conducting the error-correcting decoding and said step of

calculating the error-detecting code assume a position other than the final bit position of the frame data assumed on the basis of the transmission rate information in the received frame data as the final bit position of the frame data.

66. The data transmission method as claimed in claim 8 or 9, wherein at the receiving side, if among the assumed final bit positions of the frame data exist a plurality of positions where the obtained likelihood difference is within the predetermined range and the assumed error-detecting code agrees with the error-detecting code calculated on the basis of the assumed transmitted data, said step of deciding decides that a position where the obtained likelihood difference becomes the minimum is the final bit position of the frame data.

67. The data transmission method as claimed in claim 19 or 20, wherein at the receiving side, if among the assumed final bit positions of the frame data exist a plurality of positions where the obtained likelihood difference is within the predetermined range and at the same time the assumed error-detecting code agrees with the error-detecting code calculated on the basis of the assumed transmitted data, said step of deciding decides that a position where the obtained likelihood difference becomes the minimum is the final bit position of the frame data.

68. The data transmission method as claimed in claim 19 or 20, wherein at the transmitting side, said step of conducting the error-correcting coding conducts, for the transmission rate information, independent error-correcting coding that is separate from the error-correcting coding for the transmitted data, the error-detecting code, and the tail bit.

69. The data transmission method as claimed in claim 68, wherein at the transmitting side, said step of conducting the error-correcting coding conducts the error-correcting coding of the transmission rate information by using a block code.

70. The data transmission method as claimed in claim 19 or 20, wherein at the transmitting side, said step of conducting the error-correcting coding conducts the error-correcting coding of all of the transmission rate information, the transmitted data, the error-detecting code, and the tail bit collectively with a convolutional code.

71. The data transmission system as claimed in claim 33 or 34, further comprising:

in the transmitter,

means for calculating transmission rate information indicating the number of bits of the transmitted data, frame by frame,

wherein said means for generating the frame data generates the frame data containing the calculated transmission rate information, and

in the receiver,

wherein both said means for conducting the error-correcting decoding and said means for calculating the error-detecting code assume the final bit position of the frame data on the basis of the transmission rate information in the received frame data.

72. The data transmission system as claimed in claim 71, wherein in the transmitter, said means for conducting the error-correcting coding conducts, for the transmission rate information, independent error-correcting coding that is separate from the error-correcting coding for the transmitted data, the error-detecting code, and the tail bit.

73. The data transmission system claimed in claim 72, wherein in the transmitter, said means for conducting the error-correcting coding conducts the error-correcting coding of the transmission rate information by using a block code.

74. The data transmission system as claimed in claim 71, wherein in the transmitter, said means for conducting the error-correcting coding conducts the error-correcting coding of all of

the transmission rate information, the transmitted data, the error-detecting code, and the tail bit collectively with a convolutional code.

75. The data transmission system as claimed in claim 71, wherein in the receiver, if said means for deciding does not decide that the final bit position of the frame data assumed on the basis of the transmission rate information in the received frame data is the final bit position of the frame data, both said means for conducting the error-correcting decoding and said means for calculating the error-detecting code assume a position other than the final bit position of the frame data assumed on the basis of the transmission rate information in the received frame data as the final bit position of the frame data.

76. The data transmission system as claimed in claim 33 or 34, wherein in the receiver, if among the assumed final bit positions of the frame data exist a plurality of positions where the obtained likelihood difference is within the predetermined range and the assumed error-detecting code agrees with the error-detecting code calculated on the basis of the assumed transmitted data, said means for deciding decides that a position where the obtained likelihood difference becomes the minimum is the final bit position of the frame data.

77. The data transmission system as claimed in claim 44 or 45, wherein in the receiver, if among the assumed final bit positions of the frame data exist a plurality of positions where the obtained likelihood difference is within the predetermined range and the assumed error-detecting code agrees with the error-detecting code calculated on the basis of the assumed transmitted data, said means for deciding decides that a position where the obtained likelihood difference becomes the minimum is the final bit position of the frame data.

78. The data transmission system as claimed in claim 44 or 45, wherein in the transmitter, said means for conducting the error-correcting coding conducts, for the transmission

rate information, independent error-correcting coding that is separate from the error-correcting coding for the transmitted data, the error-correcting code, and the tail bit.

79. The data transmission system claimed in claim 78, wherein in the transmitter, said means for conducting the error-correcting coding conducts the error-correcting coding of the transmission rate information by using a block code.

80. The data transmission system as claimed in claim 44 or 45, wherein in the transmitter, said means for conducting the error-correcting coding conducts the error-correcting coding of all of the transmission rate information, the transmitted data, the error-detecting code, and the tail bit collectively with a convolutional code. --

Respectfully submitted,

Dated: 21 February 2001

By: 

Matthew J. Marquardt (Reg. No. 40,997)
Attorney for Applicants
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New York, New York 10036
(212) 944-1515

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re International Application of

Yukihiko OKUMURA

International Application No.: PCT/JP00/03650

International filing date: June 5, 2000

For: DATA TRANSMISSION METHOD,
DATA TRANSMISSION SYSTEM,
TRANSMITTER AND RECEIVER

VERIFICATION OF TRANSLATION

Honorable Commissioner of Patent and Trademark
Washington, D.C. 20231

Sir:

Masashi SHINKAI residing at c/o TANI & ABE, 6-20, Akasaka
2-chome, Minato-ku, Tokyo 107-0052, Japan, declares:

- (1) that he knows well both the Japanese and English languages;
- (2) that he translated the claims of the above-identified International Application from Japanese to English;
- (3) that the attached English translation is a true and correct translation of the claims, specification and drawings of the above-identified International Application to the best of his knowledge and belief; and
- (4) that all statements made of his own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements are made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 USC 1001, and that such false statements may jeopardize the validity of the application or any patent issuing thereon.

February 6, 2001

Date

Masashi Shinkai

Masashi SHINKAI

19/PRTS

09/763375

JPOB Rec'd PCT/PTO 21 FEB 2001

SPECIFICATION

TITLE OF THE INVENTION

DATA TRANSMISSION METHOD, DATA TRANSMISSION SYSTEM,
5 TRANSMITTER AND RECEIVER

TECHNICAL FIELD

The present invention relates to a data transmission
method, a data transmission system, a transmitter and a
10 receiver where variable length transmitted data is put into
each frame of a fixed time length and transmitted. In the
variable rate data transmission in digital data
transmission equipment, the present invention solves a
problem that the conventional technology possesses on the
15 basis of error detecting technology and error correcting
technology by means of contrivances in a method of
transmitting error-detecting code parity bits and in a
method of determining the rate on the basis of error-
correcting decoding likelihood information, improves
20 performance of detecting the rate, and implements
high-quality variable rate data transmission.

BACKGROUND ART

In the data transmission method where information of
25 voice signals and the like is converted into digital data
and transmitted, an amount of information to be transmitted
is not always constant in terms of time, but generally may

change from time to time.

Accordingly, if the transmission data is divided into frame units each having a fixed time length and each frame consisting of variable number of bits is transmitted frame by frame to achieve the data transmission, a transmission rate can be varied temporally and necessary information can be transmitted efficiently in each frame period. At this time, a transmitter need not conduct useless transmission and hence the power consumption of the apparatus can be suppressed to low.

To conduct data transmission with varying transmission rate, normally it is necessary for the receiving side to get information indicating how fast the transmission rate of each frame is by means of some kind or another. For this purpose, conventionally there have been two methods: one is a method whereby the rate information is transmitted directly as part of frame data and the receiving side determines the rate on the basis of this information; and the other is a method where no rate information is sent, but the receiving side judges the rate with an error-detecting code that is added to the transmitted data to indicate transmission quality (for example, CRC: Cyclic Redundancy Check code), called a blind rate detection method (for example, refer to International Publication No. W096/26582 applied by the present applicant).

On the other hand, in communication environments